

AMENDMENTS TO THE CLAIMS

1-7. (Cancelled)

8. (Currently Amended)      An apparatus for converting nitric oxide in exhaust gas into nitrogen dioxide, comprising:

a plasma reactor having a plurality of dielectrically-coated electrodes defining at least one reaction zone configured to receive the gas, said dielectrically-coated electrodes each having an electrode plate completely enclosed within a fluoropolymeric shell, the fluoropolymeric shell having a dielectric strength of 60 kV/mm; and

a voltage supply connected to each of the dielectrically-coated electrodes to provide a voltage across the dielectrically-coated electrodes.

9. (Previously Presented)      An apparatus in accordance with claim 8, further comprising a scrubber.

10. (Previously Presented)      An apparatus in accordance with claim 8, further comprising an injector configured to introduce ethanol into said gas.

11. (Previously Presented)      An apparatus in accordance with claim 8, further comprising an inlet and an outlet, each connected to the plasma reactor.

12. (Cancelled)

13. (Previously Presented)      An apparatus in accordance with claim 8, wherein the voltage applied across the dielectrically-coated electrodes creates an electric field whose strength is above the critical field strength of the gas, but not so high as to establish a condition conducive to sustain arcing between the dielectrically-coated electrodes.

14. (Previously Presented) An apparatus in accordance with claim 8, wherein the voltage applied across the dielectrically-coated electrodes creates a multitude of short-lived current filaments within the gas.

15. (Previously Presented) An apparatus in accordance with claim 8, wherein at least one reactive species is generated by the plasma reactor, to react with said nitric oxides.

16. (Previously Presented) An apparatus in accordance with claim 15, wherein the at least one reactive species is electrons for promoting primarily electron-molecule collisions in the gas.

17. (Previously Presented) An apparatus in accordance with claim 8, comprising at least three dielectrically-coated electrodes arranged in parallel formation defining at least two gaps therebetween through which the gas passes.

18. (Cancelled)

19. (Currently Amended) The apparatus in accordance with claim 8, wherein the apparatus for ~~converts~~ converting approximately 90% of the nitric oxide in exhaust gas into nitrogen dioxide.